

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-80. (Canceled)

81. (Previously Presented) A method of changing base stations from a source base station to a target base station, wherein the source base station is in communication with a source core network support node, and the target base station is in communication with a target core network support node, the method comprising the steps of:

the source base station transferring packet switched communications between a mobile station and the source core network support node;

the source core network support node maintaining sequence number information for packets communicated to and from the mobile station;

the source core network support node forwarding the maintained sequence number information to the target core network support node during the base station change; and

wherein the base station change is of a lossless type allowing lossless base station change of packet switched communications in unacknowledged mode between the mobile station and the core network support nodes.

82. (Previously Presented) The method according to claim 81, wherein a protocol entity in the source core network support node maintains Network layer Protocol Data Unit (N-PDU) send and receive sequence numbers and GPRS Tunneling Protocol Transport Packet Data Unit (GTP T-PDU) uplink and downlink sequence numbers for each packet flow subject to base station change of lossless type.

83. (Previously Presented) The method according to claim 82, wherein downlink N-PDU and downlink GTP T-PDU sequence numbers are provided along with each N-PDU forwarded from the source core network support node to the target core network support node.

84. (Previously Presented) The method according to claim 82, wherein Logical Link Control (LLC) data buffered in the source base station, which data has not been sent to, or acknowledged by, the mobile station at the point in time when the source base station sends the packet switched handover command message to the mobile station, is deleted.

85. (Previously Presented) The method according to claim 84, wherein a status message is sent back to the source core network support node telling it how many LLC PDUs have been detected.

86. (Previously Presented) The method according to claim 85, wherein the status message provides part of the one or more deleted LLC PDUs.

87. (Previously Presented) The method according to claim 86, wherein the status message provides the header of the one or more deleted LLC PDUs.

88. (Previously Presented) The method according to claim 82, wherein a set of N-PDUs sent down to the source BSS are buffered in the source core network support node for each packet flow subject to lossless PS handover.

89. (Previously Presented) The method according to claim 82, wherein a PS handover command message contains a Radio Link Control Acknowledgment/Negative Acknowledgment (RLC ACK/NACK) report allowing a mobile station to determine which one or more N-PDUs have been completely received by the network.

90. (Previously Presented) The method according to claim 82, wherein a mobile station starts uplink transmission, upon handover to a target cell, by an estimated next uplink N-PDU that was not acknowledged by lower layers in a source cell from which the mobile station was handed over to the target cell.

91. (Previously Presented) The method according to claim 82, wherein a PS handover command sent from the support node to a source BSS includes an expected Receive N-PDU sequence number at which a mobile station should start transmission in a target cell for each uplink packet flow subject to lossless handover.

92. (Previously Presented) The method according to claim 82, wherein a mobile station buffers one or more uplink N-PDUs which have been confirmed according to Radio Link Control (RLC).

93. (Previously Presented) The method according to claim 82, wherein uplink and downlink T-PDU with GTP header (G-PDU) sequence numbers associated with uplink and downlink N-PDUs are recorded while in unacknowledged mode between the mobile station and the support node.

94. (Previously Presented) The method according to claim 81, wherein the base station change allows an entire data transfer session in unacknowledged mode.

95. (Previously Presented) The method according to claim 94, wherein the data transfer session is a session of data file transfer.

96. (Previously Presented) The method according to claim 81, wherein the packet switched communications in unacknowledged mode between the mobile station and the source core network support node concerns unacknowledged mode of LLC protocol.

97. (Previously Presented) The method according to claim 81, further comprising the step of recording one or more sequence numbers of one or more protocol data units in both uplink and downlink directions.

98. (Previously Presented) The method according to claim 97, wherein the protocol data units are Network layer Protocol Data Units (N-PDUs).

99. (Previously Presented) The method according to claim 97, wherein the protocol data units are T-PDUs with GTP headers (G-PDUs).

100. (Previously Presented) The method according to claim 81, wherein Subnetwork Dependent Convergence Protocol (SNDCP) sequence continuity is maintained across the core network support nodes involved in the packet switched base station change.

101. (Previously Presented) The method according to claim 100, wherein one or more SNDCP Unitdata (SN-UNITDATA) protocol data units include one or more N-PDU.

102. (Previously Presented) The method according to claim 101, wherein an Network layer Protocol Data Unit (N-PDU) number is included in a header of each SN-UNITDATA protocol data unit.

103. (Previously Presented) The method according to claim 81, wherein the source core network support node connected to the source base station or base station subsystem to be changed informs the mobile station, also connected to the base station or base station subsystem, of a next expected uplink protocol data unit to be received.

104. (Previously Presented) The method according to claim 81, wherein the mobile station connected to the source base station or base station subsystem to be changed informs the source core network support node, also connected to the base

station or base station subsystem, of a next expected down-link protocol data unit to be received.

105. (Previously Presented) The method according to claim 103, wherein the base station or base station subsystem relays the information between the mobile station and the source core network support node with no required processing of the information.

106. (Previously Presented) The method according to claim 103, wherein the source base station or base station subsystem is allowed to continue receiving uplink data while emptying downlink buffers as a response to a PS Handover Command.

107. (Previously Presented) The method according to claim 81, wherein the protocol data units are compliant with Sub-Network Dependent Convergence Protocol (SNDCP).

108. (Previously Presented) The method according to claim 107, wherein SNDCP entities in a source core network support node buffer one or more downlink N-PDUs.

109. (Previously Presented) The method according to claim 108, wherein the source core network support node buffers a number of N-PDUs corresponding to a delay attribute of the associated packet flow.

110. (Previously Presented) The method according to claim 109, wherein the buffered N-PDUs are forwarded to the target core network support node during the base station change.

111. (Previously Presented) The method according to claim 110, wherein the received forwarded N-PDUs in the target core network support node are forwarded to the mobile station.

112. (Previously Presented) The method according to claim 111, wherein the one or more N-PDUs are forwarded to the mobile station when the source core network support node has received a PS Handover Complete message.

113. (Previously Presented) The method according to claim 107, wherein one or more downlink N-PDUs are buffered in SNDCP entities in a target core network support node.

114. (Previously Presented) The method according to claim 113, wherein the target core network support node buffers a number of uplink N-PDUs corresponding to the number of N-PDUs received from the source s core network upport node.

115. (Previously Presented) The method according to claim 107, wherein one or more uplink N-PDUs are buffered in SNDCP entities in the mobile station.

116. (Previously Presented) The method according to claim 115, wherein the mobile station buffers a number of N-PDUs corresponding to the maximum delay of RLC/MAC acknowledgement of transmission of LLC PDU.

117-127. (Canceled)

128. (Previously Presented) A core network support node in a packet switched communications system including base stations for communications involving at least one mobile station, the core network support node comprising:

processing means operating according to one or more protocols for receiving protocol data units, the processing means extracting information for the core network support node to inform a mobile station of next expected uplink protocol data unit in

association with packet switched base station change in unacknowledged mode of the at least one mobile station.

129. (Currently Amended) A core network support node in a packet switched communications system including base stations for communications involving at least one mobile station, the core network support node comprising:

processing means operating according to one or more protocols for transferring protocol data units; and,

a receiver for receiving ~~informing~~ information from the at least one mobile station on a next expected downlink protocol data unit in association with packet switched handover to allow lossless base station change in unacknowledged mode of packet switched communications.

130. (Previously Presented) The core network support node according to claim 129, further comprising a protocol entity for maintaining N-PDU send and receive sequence numbers and GTP T-PDU uplink and downlink sequence numbers for each packet flow subject to base station change of lossless type, the support node acting as source support node during the base station change for forwarding maintained sequence number information to a target support node of the base station change.

131. (Previously Presented) The core network support node according to claim 130, further comprising processing means for providing downlink Network layer Protocol Data Unit (N-PDU) and downlink GPRS Tunneling Protocol Transport Packet Data Unit (GTP T-PDU) sequence numbers along with each N-PDU forwarded to the target support node.

132. (Previously Presented) The core network support node according to claim 130, further comprising a buffer for buffering a set of N-PDUs sent down to a source base station for each packet flow subject to lossless packet switched handover.

133. (Previously Presented) The core network support node according to claim 130, further comprising processing means for including a Radio Link Control Acknowledgment/Negative Acknowledgment (RLC ACK/NACK) report in a PS handover command message, thereby allowing a mobile station to determine which one or more N-PDUs have been completely received by the network.

134. (Previously Presented) The core network support node according to claim 130, wherein a PS handover command sent from the support node to a source BSS includes an expected Receive N-PDU sequence number at which a mobile station should start transmission in a target cell for each uplink packet flow subject to lossless handover.

135. (Previously Presented) The core network support node according to claim 130, further comprising recording means for recording uplink and downlink G-PDU sequence numbers associated with uplink and downlink N-PDUs while in unacknowledged mode between the mobile station and the support node.

136. (Previously Presented) The core network support node according to claim 129, wherein the base station change is within a GSM-EDGE Radio Access Network (GERAN) or between a GERAN and a Universal Mobile Telecommunication System (UMTS) Terrestrial Radio Access Network (UTRAN).

137. (Previously Presented) The core network support node according to claim 129, wherein a protocol entity of the support node maintains sequence continuity over the core network support node.

138. (Previously Presented) The core network support node according to claim 137, wherein the protocol entity operates according to Subnetwork Dependent Convergence Protocol (SNDCP).

139. (Previously Presented) The core network support node according to claim 129, wherein, upon completion of a packet switched base station change, the core network support node sustaining a changed to base station starts transmissions of protocol data units to the at least one mobile station at the next protocol data unit expected by the at least one mobile station.

140. (Previously Presented) The core network support node according to claim 139, further comprising receive means, the transmissions being started upon the receive means receiving a PS Handover Complete message.

141. (Previously Presented) The core network support node according to claim 128, wherein the protocol data units are compliant with Sub-Network Dependent Convergence Protocol.

142. (Previously Presented) The core network support node according to claim 141, wherein the processing means records, according to the Sub-Network Dependent Convergence Protocol, N-PDU sequence numbers of N-PDUs received or transferred.

143. (Previously Presented) The core network support node according to claim 141, wherein the processing means records, according to the Sub-Network Dependent Convergence Protocol, G-PDU sequence numbers of G-PDUs received or transferred.

144. (Previously Presented) The core network support node according to claim 141, further comprising buffer means for buffering downlink N-PDUs

145. (Previously Presented) The core network support node according to claim 144, wherein the buffer size is sufficiently large for a number of N-PDUs corresponding to a delay attribute of the associated packet flow.

146. (Previously Presented) The core network support node according to claim 128, wherein the information on next expected protocol data unit is transferred in a message initiating or completing a change of base station or handover as regards the at least one mobile station.

147. (Previously Presented) The core network support node according to claim 146, wherein the message initiating or completing a change of base station or handover is a PS Handover Command or PS Handover Complete message.

148. (Previously Presented) The core network support node according to claim 144, wherein the buffered protocol data units are transferred upon packet switched base station change to a target core network support node sustaining packet switched communications over the base station to which the at least one mobile station changed.

149. (Previously Presented) The core network support node according to claim 148, wherein the buffered protocol data units are transferred upon completion of a preparation phase of the packet switched base station change.

150. (Previously Presented) The core network support node according to claim 128, wherein the core network support node is a Serving GPRS Support Node (SGSN).

151. (Previously Presented) A source base station entity in a packet switched communications system having at least one core network support node for communications involving at least one mobile station, the base station entity comprising:
receive means, transmit means and buffer means, wherein the buffer means buffers downlink protocol data units, the buffer means being emptied of protocol data units destined for the at least one mobile station, the protocol data units being transmitted by the transmit means upon the receive means receiving a command of

packet switched base station change in unacknowledged mode, as regards the one mobile station, from the at least one core network support node.

152. (Previously Presented) The source base station entity according to claim 151, further comprising processing means for deleting buffered Logical Link Control (LLC) data that has not been sent to, or acknowledged by, the mobile station at the point in time when the source base station entity sends the packet switched handover command message to the mobile station.

153. (Previously Presented) The source base station entity according to claim 152, further comprising sending means for sending a status message back to the source core network support node telling it how many LLC PDUs have been deleted.

154. (Previously Presented) The source base station entity according to claim 153, wherein the status message provides part of the one or more deleted LLC PDUs.

155. (Previously Presented) The source base station entity according to claim 154, wherein the status message provides the header of the one or more deleted LLC PDUs.

156. (Previously Presented) The source base station entity according to claim 151, wherein the receive means receives uplink packet data from the at least one mobile station while the buffer means is emptied of protocol data units destined for the at least one mobile station.

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